RAW SEQUENCE LISTING DATE: 03/11/2002
PATENT APPLICATION: **US/10/080,210** TIME: 10:42:16

Input Set : **A:\GC561-3-SEQLIST.TXT**
Output Set: **N:\CRF3\03112002\J080210.raw**


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     4 <110> APPLICANT: Wang, Huaming
     5       Bodie, Elizabeth A.
     7 <120> TITLE OF INVENTION: Phenol Oxidizing Enzymes
    10 <130> FILE REFERENCE: GC561-3
C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/080,210
C--> 13 <141> CURRENT FILING DATE: 2002-02-19
    15 <150> PRIOR APPLICATION NUMBER: US 09/220,871
    16 <151> PRIOR FILING DATE: 1998-12-23
    18 <150> PRIOR APPLICATION NUMBER: US 09/338,723
    19 <151> PRIOR FILING DATE: 1999-06-23
    21 <160> NUMBER OF SEQ ID NOS: 17
    23 <170> SOFTWARE: FastSEQ for Windows Version 4.0
    25 <210> SEQ ID NO: 1
    26 <211> LENGTH: 3677
    27 <212> TYPE: DNA
    28 <213> ORGANISM: Stachybotrys chartarum
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    33 ggggcacaga ctatcaagtg agacatatag gatgcatgtc tttcatagcc acagttaggg     180
    34 tggtgaccta ctcgaagagg ccccgacttg catgcatacg acatgtcgct tccatgcaac     240
    35 atgtatgcgc acatcggcga tcaggcaccc tctgcatgca gaatagaacc cccctggttt     300
    36 cctttttgtt cttttccttt ctcaacgacg cgtgagcgtg gttaacttga gcaaggccga     360
    37 gtggtctgtt cacgaggtta ccatcgaact ctcttctttc ccaatcatga cctgcccccc     420
    38 gagtttagcc cccatcacgg ctgtgaaatc cacttcgata atcctagcct agtgctactc     480
    39 ttcaatagtt gctcctgatg gggcactttg gtcacattgc cttggttyct cctacctcgt     540
    40 tctcttccgc atcaagcctc tatgcccgac gacaacacct cattggcccg gaccactttg     600
    41 agcgcgcacg caccttcgcg ccgaaggagt tgataacacc cttcaccctt gcccaatgat     660
    42 ggagttttgg tctatttgtc atgatcacct cacattcact agatcacgga tcctggaaga     720
    43 gggtgtggaa gccagaccag cttgtccctg ttcttgcaga ctcaggtcag ctcctagcgg     780
    44 ctatcacagc tcaggattat caagtcccgt aaagtccaga ccctttcat tgtatgatgc      840
    45 tgcctaattt gcgctatctc tatgccgtag cagccgtctt ggctacaact ggctgccatg     900
    46 gctgaagcat cgtgagatct ataaaggtct ccgaatcctc ggtgaagtca gaatcgtctc     960
    47 tccacaccag tcaacaacaa gcttctttct cttacagctt agcctgagca cattcacaga    1020
    48 actcttccct tcttttcgtc aatatgctgt tcaagtcatg gcaactggca gcagcctccg    1080
    49 ggctcctgtc tggagtcctc ggcatcccga tggacaccgg cagccacccc attgaggctg    1140
    50 ttgatcccga agtgaagact gaggtcttcg ctgactccct ccttgctgca gcaggcgatg    1200
    51 acgactggga gtcacctcca tacaacttgc tttacaggtg agacacctgt cccacctgtt    1260
    52 ttccctcgat aactaactct tataggaatg ccctgccaat tccacctgtc aagcagccca    1320
    53 agatgtatgt ctttgatttt ctacgaagca actcggcccc gactaatgta ttctaggatc    1380
    54 attaccaacc ctgtcaccgg caaggacatt tggtactatg agatcgagat caagccattt    1440
    55 cagcaaaggg tgagtttgct cagaaacctt gtggtaatta atcattgtta ctgacccttt    1500
    56 cagatttacc ccaccttgcg ccctgccact ctcgtcggct acgatggcat gagccctggt    1560
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RAW SEQUENCE LISTING
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Output Set: N:\CRF3\03112002\J080210.raw

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58 gtggagaact cggtccatct gcacggctcc ccatcgcgtg ccccttcga tggttgggct    1680
59 gaagatgtga ccttccctgg cgagtacaag gattactact ttcccaacta ccaatccgcc    1740
60 cgccttctgt ggtaccatga ccacgctttc atgaaggtat gctacgagcc tttatctttc    1800
61 ttggctacct ttggctaacc aacttccttt cgtagactgc tgagaatgcc tactttggtc    1860
62 aggctggcgc ctacattatc aacgacgagg ctgaggatgc tctcggtctt cctagtggct    1920
63 atggcgagtt cgatatccct ctgatcctga cggccaagta ctataacgcc gatggtaccc    1980
64 tgcgttcgac cgagggtgag gaccaggacc tgtggggaga tgtcatccat gtcaacggac    2040
65 agccatggcc tttccttaac gtccagcccc gcaagtaccg tttccgattc ctcaacgctg    2100
66 ccgtgtctcg tgcttggctc ctctacctcg tcaggaccag ctctcccaac gtcagaattc    2160
67 ctttccaagt cattgcctct gatgctggtc tccttcaagc ccccgttcag acctctaacc    2220
68 tctaccttgc tgttgccgag cgttacgaga tcattattgg tatgccctcc cctctcacga    2280
69 atgagtcaag aactctaaga ctaacacttg tagacttcac caactttgct ggccagactc    2340
70 ttgacctgcg caacgttgct gagaccaacg atgtcggcga cgaggatgag tacgctcgca    2400
71 ctctcgaggt gatgcgcttc gtcgtcagct ctggcactgt tgaggacaac agccaggtcc    2460
72 cctccactct ccgtgacgtt cctttccctc ctcacaagga aggccccgcc gacaagcact    2520
73 tcaagtttga acgcagcaac ggacactacc tgatcaacga tgttggcttt gccgatgtca    2580
74 atgagcgtgt cctggccaag cccgagctcg gcaccgttga ggtctgggag ctcgagaact    2640
75 cctctggagg ctggagccac cccgtccaca ttcaccttgt tgacttcaag atcctcaagc    2700
76 gaactggtgg tcgtggccag gtcatgccct acgagtctgc tggtcttaag gatgtcgtct    2760
77 ggttgggcag gggtgagacc ctgaccatcg aggcccacta ccaaccctgg actggagctt    2820
78 acatgtggca ctgtcacaac ctcattcacg aggataacga catgatggct gtattcaacg    2880
79 tcaccgccat ggaggagaag ggatatcttc aggaggactt cgaggacccc atgaacccca    2940
80 agtggcgcgc cgttccttac aaccgcaacg acttccatgc tcgcgctgga aacttctccg    3000
81 ccgagtccat cactgcccga gtgcaggagc tggccgagca ggagccgtac aaccgcctcg    3060
82 atgagatcct ggaggatctt ggaatcgagg agtaaacccc gagccacaag ctctacaatc    3120
83 gttttgagtc ttaagacgag gctcttggtg cgtattcttt tcttccctac ggggaactcc    3180
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85 tcattaccgc ccacttgtac ctattcgatt cttgttcaaa cttttctagt gcgagagtgt    3300
86 ccatagtcaa gaaacgccca tagggctatc gtctaaactg aactattgtg tggtctgtga    3360
87 cgtggagtag atgtcaattg tgatgagaca cagtaaatac ggtatatctt ttcctaggac    3420
88 tacaggatca gtttctcatg agattacatc cgtctaatgt ttgtccatga gagtctagct    3480
89 aaggttgaga atgcatcaga cggaatcatt tgatgctctc agctcgtatt accgatgtaa    3540
90 gacaagttag gtaagttgct tggtatccga aaatgactca ggctccctca ttaggttgca    3600
91 tgtgaaaacc ttcagcaact catgggtgtt gggaccaaat catccatacc tgattttgat    3660
92 aactgacctg ggtcaat                                                  3677
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95 <211> LENGTH: 594
96 <212> TYPE: PRT
97 <213> ORGANISM: Stachybotrys chartarum
99 <400> SEQUENCE: 2
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102 Gly Val Leu Gly Ile Pro Met Asp Thr Gly Ser His Pro Ile Glu Ala
103             20                  25                  30
104 Val Asp Pro Glu Val Lys Thr Glu Val Phe Ala Asp Ser Leu Leu Ala
105         35                  40                  45
106 Ala Ala Gly Asp Asp Asp Trp Glu Ser Pro Pro Tyr Asn Leu Leu Tyr
107     50                  55                  60
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Input Set : A:\GC561-3-SEQLIST.TXT
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108 Arg Asn Ala Leu Pro Ile Pro Pro Val Lys Gln Pro Lys Met Ile Ile
109 65                  70                  75                  80
110 Thr Asn Pro Val Thr Gly Lys Asp Ile Trp Tyr Tyr Glu Ile Glu Ile
111                 85                  90                  95
112 Lys Pro Phe Gln Gln Arg Ile Tyr Pro Thr Leu Arg Pro Ala Thr Leu
113             100                 105                 110
114 Val Gly Tyr Asp Gly Met Ser Pro Gly Pro Thr Phe Asn Val Pro Arg
115         115                 120                 125
116 Gly Thr Glu Thr Val Val Arg Phe Ile Asn Asn Ala Thr Val Glu Asn
117     130                 135                 140
118 Ser Val His Leu His Gly Ser Pro Ser Arg Ala Pro Phe Asp Gly Trp
119 145                 150                 155                 160
120 Ala Glu Asp Val Thr Phe Pro Gly Glu Tyr Lys Asp Tyr Tyr Phe Pro
121                 165                 170                 175
122 Asn Tyr Gln Ser Ala Arg Leu Leu Trp Tyr His Asp His Ala Phe Met
123             180                 185                 190
124 Lys Thr Ala Glu Asn Ala Tyr Phe Gly Gln Ala Gly Ala Tyr Ile Ile
125         195                 200                 205
126 Asn Asp Glu Ala Glu Asp Ala Leu Gly Leu Pro Ser Gly Tyr Gly Glu
127     210                 215                 220
128 Phe Asp Ile Pro Leu Ile Leu Thr Ala Lys Tyr Tyr Asn Ala Asp Gly
129 225                 230                 235                 240
130 Thr Leu Arg Ser Thr Glu Gly Glu Asp Gln Asp Leu Trp Gly Asp Val
131                 245                 250                 255
132 Ile His Val Asn Gly Gln Pro Trp Pro Phe Leu Asn Val Gln Pro Arg
133             260                 265                 270
134 Lys Tyr Arg Phe Arg Phe Leu Asn Ala Ala Val Ser Arg Ala Trp Leu
135         275                 280                 285
136 Leu Tyr Leu Val Arg Thr Ser Ser Pro Asn Val Arg Ile Pro Phe Gln
137     290                 295                 300
138 Val Ile Ala Ser Asp Ala Gly Leu Leu Gln Ala Pro Val Gln Thr Ser
139 305                 310                 315                 320
140 Asn Leu Tyr Leu Ala Val Ala Glu Arg Tyr Glu Ile Ile Ile Asp Phe
141                 325                 330                 335
142 Thr Asn Phe Ala Gly Gln Thr Leu Asp Leu Arg Asn Val Ala Glu Thr
143             340                 345                 350
144 Asn Asp Val Gly Asp Glu Asp Glu Tyr Ala Arg Thr Leu Glu Val Met
145         355                 360                 365
146 Arg Phe Val Val Ser Ser Gly Thr Val Glu Asp Asn Ser Gln Val Pro
147     370                 375                 380
148 Ser Thr Leu Arg Asp Val Pro Phe Pro Pro His Lys Glu Gly Pro Ala
149 385                 390                 395                 400
150 Asp Lys His Phe Lys Phe Glu Arg Ser Asn Gly His Tyr Leu Ile Asn
151                 405                 410                 415
152 Asp Val Gly Phe Ala Asp Val Asn Glu Arg Val Leu Ala Lys Pro Glu
153             420                 425                 430
154 Leu Gly Thr Val Glu Val Trp Glu Leu Glu Asn Ser Ser Gly Gly Trp
155         435                 440                 445
156 Ser His Pro Val His Ile His Leu Val Asp Phe Lys Ile Leu Lys Arg
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Input Set : A:\GC561-3-SEQLIST.TXT
Output Set: N:\CRF3\03112002\J080210.raw

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157     450                 455                 460
158 Thr Gly Gly Arg Gly Gln Val Met Pro Tyr Glu Ser Ala Gly Leu Lys
159 465                 470                 475                 480
160 Asp Val Val Trp Leu Gly Arg Gly Glu Thr Leu Thr Ile Glu Ala His
161                 485                 490                 495
162 Tyr Gln Pro Trp Thr Gly Ala Tyr Met Trp His Cys His Asn Leu Ile
163             500                 505                 510
164 His Glu Asp Asn Asp Met Met Ala Val Phe Asn Val Thr Ala Met Glu
165         515                 520                 525
166 Glu Lys Gly Tyr Leu Gln Glu Asp Phe Glu Asp Pro Met Asn Pro Lys
167     530                 535                 540
168 Trp Arg Ala Val Pro Tyr Asn Arg Asn Asp Phe His Ala Arg Ala Gly
169 545                 550                 555                 560
170 Asn Phe Ser Ala Glu Ser Ile Thr Ala Arg Val Gln Glu Leu Ala Glu
171                 565                 570                 575
172 Gln Glu Pro Tyr Asn Arg Leu Asp Glu Ile Leu Glu Asp Leu Gly Ile
173             580                 585                 590
174 Glu Glu
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178 <211> LENGTH: 2905
179 <212> TYPE: DNA
180 <213> ORGANISM: Bipolaris spicifera
182 <400> SEQUENCE: 3
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184 aatcccatca tcagcttttg aacattctca gctcatcaaa gattttcttc aagatggtcg     120
185 ccaaatacct cttctcagca cttcaactcg tttcaattgc gaaaggcata tacggygtcg     180
186 ctttgagcga acgtcccgcc aaatttgtcg acaacacccc cgacgaagaa aaggctgcct     240
187 tggcgtcaat tgttgaagat gaccctgcgg atgttgtcaa catgctgaaa gactggcaaa     300
188 gcccggagta tcctctcatt tttcgccaac cactgcccat ccctccagcc aaggaaccaa     360
189 aqtagtgagt gttcaatcgc atcgacaggt ttcttagaat atactcacca tccacagtaa     420
190 actcacgaat cctgtcacaa acaaggagat atggtactac gagattgtca tcaaaccctt     480
191 cacccagcag gtctatccaa gcctgcgccc tgctcgttta gtaggctatg acggcatctc     540
192 cccaggtcct acgatcatag tgccgagagg aacagaagct gttgtacggt ttataaacca     600
193 gggtgatcgc gaaagctcca tccatctcca cggctccccc tcccgtgccc cttttgacgg     660
194 atgggctgat gatatgatca tgaaggggga atacaaaggt acgatagcgt gtgattctac     720
195 gcatcaggaa gcctctatca tactaacagg actttcttct cagactacta ctacccgaac     780
196 aaccaagctg ccagattttt gtggtaccac gatcatgcta tgcatgttgt aagtctttac     840
197 cgacttttca tggtagtgaa acggaaggat taagctaaca tctgtgcaga ccgcagaaaa     900
198 tgcctatttc gggcaagccg gcgcctacct gatcacagac ccggctgagg atgctctcgg     960
199 ccttccttca ggttacggaa aatacgacat tccgctggtc ctcagttcca agtactacaa    1020
200 cqccgatgga actcttaaga ccagtgtggg agaagacaag agtgtttggg gcgacatcat    1080
201 ccatgtcaac ggtcagccct ggccattctt aaatgttgag cctcgaaagt atcgtcttcg    1140
202 attcctcaac gcggctgttt ctaggaactt tgccctttac ttcgtcaagc aagacaacac    1200
203 tgccactagg cttcctttcc aggtcattgc ctctgatgca gggctactca cacacccggt    1260
204 tcaaacctca gatatgtatg ttgcagccgc agaacgctac gagattgtgt tcgatttcgc    1320
205 gccctatgcc ggccaaacgt tggatctgcg caacttcgca aaggccaatg gtatcggtac    1380
206 cgacgacgac tacgcaaaca ctgacaaggt catgcgtttc cacgtcagca gccaaacagt    1440
207 cgtcgataac tccgtggtac ccgagcagct atctcagatc cagttccccg cggacaaaac    1500
208 cgacatagac catcacttcc gtttccatcg taccaacggc gagtggcgca tcaacggcat    1560
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RAW SEQUENCE LISTING DATE: 03/11/2002
PATENT APPLICATION: US/10/080,210 TIME: 10:42:16

Input Set : A:\GC561-3-SEQLIST.TXT
Output Set: N:\CRF3\03112002\J080210.raw

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210 ttgggaactt gagaacagct ccggcggctg gtcacacccc atccacgtcc acctagtaga 1680
211 cttccgagtc gtcgcacgct acggcgacga aggcactcgc ggcgtcatgc cctatgaggc 1740
212 cgccggtctc aaggacgtcg tgtggctcgg ccgtcacgag acggtcctcg tcgaagcaca 1800
213 ttacgcccca tgggacggag tctacatgtt ccactgccac aacctcatcc acgaagacca 1860
214 agacatgatg gccgccttcg acgtgactaa actccagaac tttgggtaca acgagacgac 1920
215 tgatttccac gatcctgagg atcctcgctg gtcagcaaga cctttcaccg cgggtgatct 1980
216 cacggcgcga tcgggtatct tttcagaaga atccatcagg gctagagtaa atgagttggc 2040
217 gctcgagcag ccttacagcg aactcgcaca agttacagcc tcgctcgagc agtactacaa 2100
218 gacgaaccag aaacgccacg acgagtgcga agacatgcct gctggcccta tccccgtta 2160
219 tcgtaggttt caggtctgat tcaagttgtt ttggtggtgc aacttctcct tcttctctcc 2220
220 attgaactta attgtagatg atggatacac actcacttct ccctttctat ctcgacgctt 2280
221 tggccatttt atttggtctt attgtgctat atactgtcta tttctctttc gtatacgagc 2340
222 aatgtatgtc ttggtcggag tcttgtggag ctgctgaggt gacacctcgc gacgccatct 2400
223 tagcagtttt cgtaactctc gtctatttgt gattactttg ttccttaatc agtaacagct 2460
224 tgatgttaga ttagcaatga gacgaacgat gaagcaatct gagatggatc ctttttttt 2520
225 cctaatattt gtatactaaa gaatgtgaac aatgccgttt tatgaaatgc tcataacatg 2580
226 cagcatattt actttgttct atttcatttc attttcatat gtacgcatat cctcggcatc 2640
227 agacaagaga cgcgacaacg ctctctgcat cccttctcgg cccgtaattc cgtagaaaat 2700
228 gaccgacggg aaagcagtcc tccacgcgct ccatgctcat catgctgcgt actatgtatc 2760
229 cccttccaac gcggatggcg cggatgtcgc tgcgaaccca ttgaatgggc atcacgacag 2820
230 ccatcatgtc gctaaggacg gattcttctt cggatgcaat gcttgtgagg gggttttctg 2880
231 catcccagca agatgaggtg gatcc 2905
233 <210> SEQ ID NO: 4
234 <211> LENGTH: 627
235 <212> TYPE: PRT
236 <213> ORGANISM: Bipolaris spicifera
238 <400> SEQUENCE: 4
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240 1 5 10 15
241 Lys Gly Ile Tyr Gly Val Ala Leu Ser Glu Arg Pro Ala Lys Phe Val
242 20 25 30
243 Asp Asn Thr Pro Asp Glu Glu Lys Ala Ala Leu Ala Ser Ile Val Glu
244 35 40 45
245 Asp Asp Pro Ala Asp Val Val Asn Met Leu Lys Asp Trp Gln Ser Pro
246 50 55 60
247 Glu Tyr Pro Leu Ile Phe Arg Gln Pro Leu Pro Ile Pro Pro Ala Lys
248 65 70 75 80
249 Glu Pro Asn Lys Leu Thr Asn Pro Val Thr Asn Lys Glu Ile Trp Tyr
250 85 90 95
251 Tyr Glu Ile Val Ile Lys Pro Phe Thr Gln Gln Val Tyr Pro Ser Leu
252 100 105 110
253 Arg Pro Ala Arg Leu Val Gly Tyr Asp Gly Ile Ser Pro Gly Pro Thr
254 115 120 125
255 Ile Ile Val Pro Arg Gly Thr Glu Ala Val Val Arg Phe Ile Asn Gln
256 130 135 140
257 Gly Asp Arg Glu Ser Ser Ile His Leu His Gly Ser Pro Ser Arg Ala
258 145 150 155 160
259 Pro Phe Asp Gly Trp Ala Asp Asp Met Ile Met Lys Gly Glu Tyr Lys

Use of n and Xaa has been detected in the Sequence Listing. Review the Sequence Listing to ensure a corresponding explanation is present in the <220> to <223> fields of each sequence using n or Xaa

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L:12 M:270 C: Current Application Number differs, Replaced Current Application Number
L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:512 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8
L:513 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8
L:537 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:555 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10
L:586 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:601 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13
L:616 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14
L:635 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15
L:650 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:16
L:677 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17